

What is claimed:

1. A method for fabricating a multi-layer three-dimensional structure, comprising:
 - (i) forming a first layer, comprising:
 - a) providing a first mask in contact with a substrate, wherein the mask has a first pattern of openings therein;;
 - b) depositing a first pattern of a first material from a source of the first material onto said substrate using the first mask to form a portion of a first layer, wherein the first material comprises a sacrificial material or a structural material;
 - c) removing the first mask from the substrate;
 - d) depositing a second material onto the substrate, wherein the second material comprises the other of a structural material or a sacrificial material;
 - (ii) building additional layers adjacent to and adhered to previously formed layers; and
 - (iii) removing undesired elements of structural material from at least the first layer via etching or electropolishing.
2. The method of claim 1 wherein the first material is a first metal.
3. The method of claim 2 wherein the second material is a second metal.
4. The method of claim 3 wherein the first metal is the sacrificial material and the second metal is the structural material.
5. The method of claim 4 wherein the undesired elements of the second metal are removed via chemical etching.
6. The method of claim 4 wherein the undesired elements of the second metal are removed via electropolishing.
7. The method of claim 3 wherein the first metal is the structural material and the second metal is the sacrificial material.

8. The method of claim 7 wherein the undesired elements of the first metal are removed via chemical etching.
9. The method of claim 7 wherein the undesired elements of the first metal are removed via electropolishing.
10. The method of claim 1 wherein the forming of the first layer comprises removing a portion of at least one of the deposited materials.
11. The method of claim 10 wherein the removing is performed during a process of planarizing a surface of the first layer.
12. The method of claim 1 wherein the first material comprises a sacrificial material and the second material comprises a structural material, and wherein the method additionally comprises:
 - (iii) releasing the structural material from the sacrificial material after formation of the multi-layer structure.
13. The method of claim 1 wherein the first material comprises a structural material and the second material comprises a sacrificial material, and wherein the method additionally comprises:
 - (iii) releasing the structural material from the sacrificial material after formation of the multi-layer structure.
14. A method for fabricating a multi-layer three-dimensional structure, comprising:
 - (i) forming a first layer, comprising:
 - a) providing a first mask in contact with a substrate, wherein the mask has a first pattern of openings therein;;
 - b) depositing a first pattern of a first material from a source of the first material onto said substrate using the first mask to form a portion of a first layer;
 - c) removing the first mask from the substrate;
 - d) providing a second mask in contact with the substrate, and/or first material, wherein the mask has a second pattern of openings therein;;

e) etching a void, having a second pattern, into the substrate and/or the first material using the second mask;

f) removing the second mask from the substrate and/or first material;

g) depositing a second material into the void; and

(ii) building layers adjacent to and adhered to previously formed layers,

wherein at least one of first or second materials is a structural material and removing an undesired portion of the structural material via an etching or electropolishing operation.

15. The method of claim 14 wherein the first material is a first metal.

16. The method of claim 15 wherein the second material is a second metal.

17. The method of claim 16 wherein the first metal is the sacrificial material and the second metal is the structural material.

18. The method of claim 17 wherein the undesired elements of the second metal are removed via chemical etching.

19. The method of claim 16 wherein the undesired elements of the second metal are removed via electropolishing.

20. The method of claim 15 wherein the first metal is the structural material and the second metal is the sacrificial material.

21. The method of claim 20 wherein the undesired elements of the first metal are removed via chemical etching.

22. The method of claim 20 wherein the undesired elements of the first metal are removed via electropolishing.

23. The method of claim 14 wherein the forming of the first layer comprises removing a portion of at least one of the deposited materials.

24. The method of claim 23 wherein the removing is performed during a process of planarizing a surface of the first layer.

25. The method of claim 14 wherein the first material comprises a sacrificial material and the second material comprises a structural material, and wherein the method additionally comprises:

(iii) releasing the structural material from the sacrificial material after formation of the multi-layer structure.

26. The method of claim 14 wherein the first material comprises a structural material and the second material comprises a sacrificial material, and wherein the method additionally comprises:

(iii) releasing the structural material from the sacrificial material after formation of the multi-layer structure.